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## Looking for \$30 Million

### Engineering Academy Wobbly Starts Third Decade

#### *Star Wars: The Episode of The Phantom "Consortium"*

With the lure of \$33 billion over the next 6 years, the Star Wars program has drawn a stampede of major industrial aerospace contractors and hopeful small fry in the lesser ranks of business. But with the Administration's policies on science and secrecy still in a muddle, some of academe's prestigious and image-conscious institutions have been eyeing the money of Star Wars, officially known as the Strategic Defense Initiative (SDI), with a good deal of suspicion. Concerns about security classifications and the imposition of "export control" regulations have made SDI money a touchy subject for some of these schools, among them Caltech and Stanford.

Last month, James Ionson, head of the SDI Office of Innovative Science and Technology, which bankrolls basic research for Star Wars (SGR Vol. XV, No. 7), announced what would be a major coup—if true: A "consortium" of leading research universities had been established to carry out a \$9-million, 3-year research project on optical computing.

So it was stated by his office in a press release, which went on to spell out that the "consortium" embraced Caltech, Stanford, MIT-Lincoln Lab, Carnegie-Mellon, Georgia Tech, Battelle Laboratories, and the US Naval Oceans Systems Center. Prime contractors were the University of Alabama, Huntsville, and the University of Dayton Research Institute.

But, according to Caltech's President, Marvin L. Goldberg, there is no consortium, a point that he made in a strongly worded letter to Defense Secretary Weinberger. Caltech, he wrote, had not approved any research contracts from the Star Wars program, and its closest relationship to the optical computing contract was a proposed \$50,000 subcontract from the University of Dayton Research Institute to a Caltech electrical engineer, Demetri Psaltis.

In response to an inquiry, Ionson explained, in Alice in Wonderland style, his office's use of the word "consortium" by saying that "there are many definitions" of the word. "This is a technical consortium," he said, adding that "The important news is that some of the most prestigious individual scientists are working together for a common goal." He ac-

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Having accomplished little but survival in its first 2 decades, the National Academy of Engineering (NAE) has commenced its third with an announcement of plans for a 10-year, \$30-million program to "ensure America's scientific, technological and engineering leadership into the 21st century."

That's what it was asked to do in a letter in March bearing Ronald Reagan's signature. So, to launch this effort, some 100 ranking figures from industry, academe, and government attended a closed-door symposium sponsored by the NAE on May 14 in Washington.

The meeting was preceded by a sourish press briefing at which several ill-tempered scribes of one or another inquired why the press was being excluded from the symposium when NAE officials have been urging greater public understanding of technological issues. They also asked why labor, organized or otherwise, was not included, when NAE itself said the goal of the decade-long program is to "enhance industrial competitiveness."

Answers were attempted by NAE President Robert M. White, the fulltime hired hand at NAE, and Stephen J. Bechtel, Chairman of the Bechtel construction conglomerate, who is the real power at the NAE. Bechtel, for whom Secretary of State Shultz and Defense Secretary Weinberger used to work, holds the specially created post of NAE Chairman, which has no counterpart in the parent National Academy of Sciences (NAS) or the

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## In Brief

Latest on the numerology of NIH's grant portfolio: 6000 now seems to be the favored number of new and competing awards for this year and next year, at least in the Senate. That's the compromise worked out between Senator Lowell Weicker (R-Conn.), who originally wanted the 6500 voted by the last Congress, and OMB's David Stockman, who had decreed a cutback to 5000 (SGR Vol. XV, No. 6). The deal still has to be ratified by the full Senate; still to report its view is the influential House Appropriations Committee, which tends to be friendly to NIH.

The National Cancer Advisory Board has rebuffed efforts by Senator Robert Byrd (D-W. Va.) to get \$4.7 million for a homestate cancer center. Earmarked money is there in the budget of the National Cancer Institute (NCI), but the Board, which has statutory responsibility for approving such awards, said at its May meeting that the proposed center lacks leadership and a program.

## ***Industry Chips in \$10 Million Toward NAE's Big Goal***

The "Decade III" program of the National Academy of Engineering is already one-third of the way toward its goal of \$30 million, according to NAE President Robert M. White.

The program, which is focused on the trendy subjects of industrial competitiveness, education, and technology, is tied in with a fundraising drive that the NAE is holding in connection with its 25th anniversary, in 1989. For the NAE, which has long been a restless subsidiary of the ancient and snootier National Academy of Sciences, money raising is a critical matter, since it has little of its own for carrying out self-initiated studies.

With politically well-connected Stephen Bechtel on the scene as NAE Chairman, NAE's financial prospects seem to have brightened. Thus, the list of donors for the combined Decade III and 25th Anniversary Fund includes a flock of major corporations, among them the Bechtel Group, Boeing, Exxon, General Motors, DuPont, GE, RCA, Monsanto, and Hughes Aircraft. In addition, money was raised from several major corporate foundations, including Alcoa, Amoco, AT&T, McDonnell Douglas, and TRW; also from the Carnegie Corporation and the Mellon Foundation. The Academy of Sciences has scored on some of these plump targets, but has never

yet claimed anything close to \$10 million in a single fundraising drive.

The Decade III program is still being formulated, but it is likely to involve a continuation of studies that began in 1976 under the NAE Committee on Technology and International Economic Trade Issues. Over the years, these studies have led to a variety of publications, including reports on the technological status and competitive situation of 7 major American industries: Autos, electronics, steel, fibers (including textiles and apparel), machine tools, pharmaceuticals, and civil aviation manufacturing.

NAE President White described the Decade III program as "an ambitious series of projects" concerning engineering and technology, education, and "enhancing the public awareness of the importance of engineering and technology in our national life." But neither he nor Bechtel at his side added anything to indicate a departure from the past diet of windy seminars and little-read reports.

A summary report of the studies so far completed, *The Competitive Status of US Industry*, has just been issued, and is available, as are the individual reports, from the National Academy Press, 2101 Constitution Ave. Nw., Washington, DC 20418.

## **... High-Vacuum Oratory Fills the Proceedings**

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parallel Institute of Medicine within the NAS complex.

Obviously uncomfortable with a decision that Academy sources say he opposed, White mumbled that the meeting was closed to the public to encourage candor among the participants, but that full briefings would be available for the press at the conclusion of the proceedings.

Bechtel, who looks like a hard-hat construction site boss, simply stated that the NAE symposium was closed because NAE preferred to do it that way. He and White sheepishly agreed that labor has something to do with industrial competitiveness. As for labor participation, they pointed out that they really had one union man listed among the 99 corporate CEOs, bank chiefs, university presidents and federal brass: Robert Georgine, President of the Building and Construction Trade Department, AFL-CIO.

Why did the list of attendees reveal only one readily recognizable female name? The 2 NAE chiefs, appearing increasingly miserable at what was, after all, just a routine Washington press-conference bloodbath, replied that perhaps more women would be taking part later.

The closed symposium, which proceeded through the day and a dinner that evening, included several speeches for which the texts were made public. These were mainly in the nature of "high-vacuum oratory," a genre that thrives in the halls of the Academy. Thus MIT President Paul Gray, in a talk titled "Education for a Technological World," told his colleagues the following:

"We live in a society in which matters directly touching our lives, in which the judgment we are called upon to make as ordinary citizens, cannot be understood without a grounding in science and mathematics. I need only name a few such issues: the risks and benefits of nuclear power, practical and ethical questions raised by molecular biology and genetic engineering, and, perhaps most important, the arms race and its control. We each have an enormous stake in these matters. They affect our ability to live our lives with security, dignity, and peace."

Gray was followed by Walter B. Wriston, former CITICORP Chairman, who spoke on "The Global Marketplace." Many things that used to be confined within national boundaries have gone international, he

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## ... NAE Offers Private Peek at Verbatim Record

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told the audience. "The constant in the global marketplace is change, and change is what we Americans deal with best."

Wriston also stated, "It's accurate to say that at least 80 percent of all the scientists who ever lived are alive today, and that in our country at least half of all scientific research done since the Revolution has been done in the last decade. With the total amount of information doubling about every 10 years, it is clear that the role of the scientist and engineer is central to our future."

Three days after the symposium, an NAE spokesperson called SGR to say that a verbatim transcript of the proceedings was available. But it could be read only on the condition—unacceptable, of course—of no direct quotation and no direct inquiry to the speakers on the program.

### Perils of Closed Doors

The foolishness of staging quasi-clandestine proceedings on public issues was long ago recognized by sensible organizations concerned with public affairs. Closed-door meetings satisfy the natural yen for private talk and provide some protection against wild-eyed reporting, though they also raise the possibility of even wilder reporting based on post-meeting whispers, innocent and malevolent.

It's perfectly legal for private institutions, of which the NAE is one, to close their doors. But when they want to muster public interest and respect and maybe even some money, as the NAE does for its \$30-million, third-decade program, an open-door policy is indispensable.

The often-raised argument that the presence of the press discourages candor is difficult to examine experimentally. But experience under the door-opening Federal Advisory Committee Act shows that frank discussion can take place in the open. Furthermore, there can be no secrets when 100 people are in on a discussion. The main report we got after that closed symposium was that it was a bore.

### Research Chief Says Caltech Planted "Poisonous Seed"

(Continued from page 1)

knowledge that the universities themselves had not banded together or formed an official organization along the lines of the supercomputing consortia recently announced by the National Science Foundation. But the difference was non-existent, he said, since "good science is not done by institutions, it's done by people at those institutions."

At least some of irritation in Pasadena seems to have resulted from a *New York Times* account of the "consortium" award in which it was implied that the work might be classified. Stanford University, which proudly proclaims its own prohibitions against classified research on campus—and is in the forefront on the issue in various forums in Washington—issued a press release emphasizing its policy.

Ionson maintains that the *Times* account is "absolutely incorrect." He reiterated DoD's stated policy of not placing export-control restrictions on fundamental research supported in academic institutions. Ionson said that despite the fact that SDI funds are categorized as 6.3, which stands for developmental research on the Pentagon's scale of R&D activities, the policy of no restrictions holds for all the work supported through his office.

The matter, however, may not be as simple as all that, since the DoD "policy" to which Ionson referred was sent to the National Security Council for review late last year, and has not been heard of since. Its champion, Richard DeLauer, has since left the post of Under Secretary for Research and Engineering at the Pentagon. It's been reported for months that his replacement is Donald A. Hicks, a Northrop Vice President, but the White House has not submitted a nomination.

Ionson said that the report of security restrictions had planted a "poisonous seed," and expressed concern that it might be difficult to eradicate. As for Goldberger's complaints, Ionson said, "It's no secret that he's not an advocate of SDI."

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## France: In the Wake of Star Wars Invitation

*Paris.* The provocative shadow of Star Wars hovers over France's pre-existing plans for scientific research. By inviting Western European participation in America's Strategic Defense Initiative (SDI), President Reagan set off an avalanche of maneuvers within the bureaucracies responsible for planning R&D.

Until recently, French scientific policy had been relatively tranquil for some time. Legislation concerning the scale and direction of the national research effort was easily passed in 1981 during the enthusiasm for the political return of the Socialists. From the perspective of the scientific community, the law set agreeable goals for increasing public funds for R&D. And, above all, the goals and the means to achieve them were determined in consultation with the research community.

The consultative process and its generous outcome produced considerable enthusiasm. But it is now largely gone. The reason is that the new Minister for Research, Hubert Curien, has prepared a new program for the next 3 years, but the process involves only his immediate staff.

This is no longer the hour of coordinated efforts or enduring commitments to long-term objectives. The goal of the new Curien plan, in terms of government budgets for R&D, is at the comfortable level of a real financial increase of 2.3 percent per year. But the plan does not single out any scientifically valuable but politically weak areas for preferred treatment.

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### *Fears for Basic Research*

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As was expected, the President of the Commission on Planning, M. Kourilski, a well-known geneticist, offered the sentiments of the basic scientists' lobby in calling for "a better policy for the use of science," and, above all, a review of big technological programs that might siphon funds from basic research.

Kourilski's concerns are based in reality, since the costs of the big programs have risen quite rapidly. Proponents of basic science complain that the increases in applied and development costs have been at the expense of their interests. But, even if that is the case, the fact is that the promises of 1981 have not been fulfilled for any sector of the French R&D enterprise.

Back in what many then regarded as the threshold of a golden age, the government proudly launched an ambitious program for a national electronics network, which was to serve as the spearhead for the modernization of both industry and society. Government spending on the program was to total \$400 million. But 3 years later, the several ministries involved have together provided only about \$60 million.

With money tight for such visible and politically popular programs, those in favor of increased spending for basic research have little chance of being heard. And now comes the Reagan Administration's invitation for Europe to join the Star Wars program.

From strategic and diplomatic perspectives, it is difficult for Western Europeans—especially the French and Germans, who are within easy reach of Soviet land forces—to accept the idea of investing vast sums in a defense system intended to provide protection only against long-range weapons. But how can one reject the anti-missile strategy without being excluded from the technological work? That's a great concern here, because, paradoxically, it is widely believed in official and industrial circles that the developments necessary for Star Wars will have important industrial consequences. TV has presented quite a few economists espousing this thesis.

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### *A Boost for Industry?*

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On April 18, Minister Curien publicly pronounced a connection between Star Wars research and technological advance of industrial value. It was then that President Mitterrand's close advisers pulled out an old project and set it into motion to combat Washington's advances.

At the 1982 summit of the major Western heads of state (when energy was the major concern in Europe), a project for international technological cooperation was agreed upon. But while no one was against it, no one felt a need to hurry. Implementation of the cooperative concept then became more difficult as the energy crisis receded from memory, and as the technocrats of the European Community developed their own programs for scientific and technological cooperation.

Within 3 years, they launched 2 large projects for cooperative research, both of which were relatively well-funded and managed: ESPRIT, for research in electronics and data processing, and BRITE, for research on materials. Within the past month, a new program was launched, RACE, focused on telecommunications and, above all, videocommunications and all its necessary components.

In contrast to ESPRIT and BRITE, which fund only basic and "precompetitive" research, when it comes to RACE, Brussels will not hesitate to finance product development as well as to propose the construction of a wide-band telecommunications network in Europe. Thus, by moving quickly while others waited, the Common Market technocrats cut the ground from under the

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## ... Weinberger Drops 60-Day Deadline for Reply

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Euro-American technological cooperation espoused at the summit. New life, however, was restored to the summit concept of transatlantic cooperation when Defense Secretary Weinberger invited Europe to join the Star Wars program.

Weinberger initially set a 60-day deadline for a reply, but he dropped it when it became clear that Europe was far from enthusiastic about the American scheme.

This became evident around mid-April when the West German Defense Minister, Hans Dietrich Genscher, asked France to propose a European counterproject for missile defense. Taking this cue, President Mitterrand's staff used the occasion to propose EUREKA, an acronym wrung from the European Research Coordination Agency. EUREKA would create "a common European front on research and technology" in such important sectors as rapid microelectronics, supercomputers, artificial intelligence, materials, lasers, and optics. The EUREKA proposal even initiated some grand talk about setting up a European Agency for Technology.

But for the moment, there is no substance to any of these proposals; there is only talk. A multitude of meetings has been held by a large cast of functionaries, but so far nothing has been settled.

The main reason appears to be that, in contrast to the clearly focused, though perhaps unrealistic, missile-destroying goal of the American SDI, EUREKA is fairly vague in terms of purpose. Compared to the other recently initiated programs in electronics, telecommunications, and so forth it has the definite handicap of proposing nothing new.

Well, then, perhaps this problem could be overcome by assigning a military goal to EUREKA. It took some doing to persuade the small countries, like Ireland and Denmark, not to oppose the idea. But the US wants Europe to join its program and not set off on an all-

European version. Prior to the Bonn summit, US officials expressed hopes for an endorsement of their program. But when the summit communique was issued, following much overtime wrangling, there wasn't even a vague statement of support. And, at a news conference, President Mitterrand used the occasion to assert that Western Europe shouldn't mobilize its talent in behalf of an American project.

German Chancellor Kohl, however, has taken a different position. He argues that participation in the current research phase of the American program would give Europe more of a say in later decisions concerning missile defense. But there is plenty of opposition to that view in Germany. As for the rest of Europe, it appears to be firmly opposed to accepting Mr. Reagan's invitation, though several high-tech firms are looking with interest on the possibility of joining in Star Wars research. Without waiting for official sanction, two major French companies have expressed interest in SDI laser projects.

Where this leaves EUREKA is quite unclear, but not especially promising. The European landscape is covered with both the hulks of failed cooperation, as well as a few robust examples of success, such as CERN, the European Space Agency, and the cooperative effort for fusion research, JET. The ones that work started with clear objectives and stuck to them. By that yardstick, the vaguely defined EUREKA does not look like a winner.

That EUREKA is at all on the discussion menu, thin as it may be, can be attributed to the turmoil created by the Star Wars invitation. The huge sums that the US is casting into this venture is a reminder that collaboration among European nations is essential if the Old World is to avoid falling further and further behind the US and Japan in technological capability. The recognition is there, but so far the response has been minimal.—FS

### 7 Percent "Real" Growth Seen for R&D This Year

With inflation relatively low and federal and industrial research and development budgets continuing upward, R&D will experience real growth of about 7 percent this year, NSF forecasts.

In current dollars, federal funds for R&D in 1985 are expected to total \$51.5 billion, an increase of nearly \$6 billion over 1984, while industrial spending will rise from \$48 billion to \$54 billion.

By categories of spending, \$73 billion will be expended on development, \$23 billion on applied research, and \$13 billion on basic research. NSF notes that the basic research sum "is nearly 3 times

the amount spent on these activities a decade earlier."

The NSF report also points out that the federal government supports about 70 percent of the basic research performed in universities, and that while industrial support for academic science has been rising, "Industry's share of universities' total basic research expenditures, however, remains small—about 4 percent."

(*Highlights Report 85-304*, 4 pages, no charge, NSF Division of Science Resources Studies, 1800 G St. Nw., Washington, DC 20550.)

## Particle Physics: The Latest from Newport News

"We're still bearing the cross of Isabelle," is how one official of the 34-member Southeastern Universities Research Association (SURA) describes the continued go-slow approach of Congress in approving funds for the \$200-million-(plus?) electron accelerator that is supposed to rise in the scientifically barren environs of Newport News, Va.

The project, which 2 years ago spawned a bitter fight between the then-newly formed SURA and the venerable (and work-seeking) Argonne National Laboratory, near Chicago, is currently the only officially approved new accelerator on the Department of Energy's books, though construction funds have not been provided. But in the arcane politics of high-energy physics, the SURA advocates can find no comfort in that singular position of approved but unfunded, since the future is far from assured. For lurking there on the horizon is the biggest basic scientific project ever seriously considered, the Superconducting Super Collider (SSC), now under design at Berkeley, with a price tag variously estimated at from \$3 billion to \$6 billion—and both Congress and DOE highly nervous about the reliability of the estimates.

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### *Deficit-Fearing Congress*

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Meanwhile, in the recent background is the notorious Isabelle, the ill-fated accelerator project that ran through \$119 million at the Brookhaven National Laboratory before an embarrassed DOE deemed the outcome hopeless and turned off the money in 1982. The SURA machine and the SSC are technically unrelated, but, against the background of the Isabelle fiasco, they add up to one big and uncertain bundle of high-energy physics for a Congress that is scientifically illiterate and obsessed with deficit reduction.

Having often been burned on high-tech projects by low early estimates that later burgeoned manyfold, Congress has been alerted by SURA cost estimates that have risen from \$100 million—as stated in the bygone wars with Argonne—to a recent figure of \$225 million. SURA officials say the difference comes from inflation, including the cost of detectors and other equipment, and a contingency allowance that the wary DOE insists on including.

Following a pattern that has occurred in other geopolitical struggles over big, federally financed research facilities, technical doubts about SURA's competence and intentions were made available to DOE when Argonne was appealing its case directly to the Department 2 years ago. These have yet to be put completely to rest. Among some persons friendly to the Argonne camp, the prevailing view, volunteered to any who will listen, is that the SURA's machine will never be built.

Among the more invidious offerings of the rumor mill are whispers that the SURA consortium triumphed not from technical superiority but because it impressed the Nuclear Science Advisory Committee with promises of 30 new tenure-track professorships to be supplied by members universities, plus 5 "Commonwealth" professorships to be funded directly by Virginia. The Committee advises DOE and the National Science Foundation on nuclear-physics facilities, and traditionally has been the advisor of last resort for resolving rival claims.

After a long and potentially damaging delay, SURA recently overcome one of the biggest obstacles to its credibility—lack of a Director for the project. Over a year ago, SURA officials were privately passing the word that they had hired an important accelerator physicist for the job. However, no one materialized, thus feeding speculation that the doomsayers were correct in asserting that no star of the profession would tie his prestige to a project with uncertain funding, operated by universities with little or no experience in the field, and located in Newport News, Va., not known as a center of scientific inquiry or cultural charm.

On May 1, however, SURA's fortunes were considerably brightened when Harmann A. Grunder, the highly regarded Deputy Director of the Lawrence Berkeley Laboratory, assumed the post.

Still, with DOE under orders to hold down spending, and Congress not inclined to budgetbusting on this issue, SURA is slated for only \$5 million in the fiscal 1986 budget, and that's restricted to R&D. Last year, SURA had asked for an equal amount, plus \$2 million to begin construction. An apprehensive Congress cut that back to \$3.5 million, for R&D only; however, a compromise provision allowed architectural and engineering studies to begin. SURA officials are now talking about a 1987 construction start.

DOE insists that, except for the 1-year, deficit-induced delay, the project is on schedule. But accelerator design is an extremely perishable item. It's not hard to find well-situated doubts about the longevity of the SURA project.

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### *Smithsonian Names No. 2*

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Dean Anderson, 38, has been appointed Undersecretary of the Smithsonian Institution, succeeding Phillip Samuel Hughes, who was appointed to the post in 1980, following a career at the Office of Management of Budget.

Anderson, also an alumnus of OMB, joined the Smithsonian in 1973 and most recently held the post of Assistant Secretary for History and Art. He assumes the new duties in mid-June.

## NIH Begins Planning for 1987 Centennial Observation

Tracing its birth to the Laboratory of Hygiene established in 1887 as part of the Marine Hospital in Staten Island, NY, the National Institutes of Health is preparing to hold a centennial observation in 1987.

This may seem arbitrary, given that the NIH's own annual *Almanac* says that the National Board of Health, created in 1879, "represented the first organized, comprehensive, national medical research effort by the Federal Government." It also lists 1930 as the year when the name "National Institute of Health" was applied to the descendant of that Staten Island lab.

Whatever the case, out in Bethesda a Special Projects operation has worked up proposals for a year's worth of centennial activities. These include:

"Biomedical seminars aimed at Congress," an "Alumni Reunion Week," including "grand din-

ner(s)," and an "NIH Centennial Nobel Prize reception and dinner" for Nobel laureates whose prize-winning work was supported by NIH—of whom 57 are now living.

They're also thinking about "NIH Centennial sporting events including a run carrying a caduceus/torch from Staten Island down the coast to Bethesda," "Encouraging major media to do features and theme issues devoted to NIH's Centennial, op-ed pieces in major prof. journals," and "Burying of a time capsule (containing all NIH employees' names as of '87) and possible creation of a Centennial monument/fountain" in front of the main NIH administration building.

For additional information: Thomas Flavin, Assistant to the Director of NIH, Shannon Building, Room 313, Bethesda, Md. 20205; tel. 301/496-4713.

## NSF Issues Major Study on Foreigners in US R&D

The National Science Foundation has compiled what is probably the most comprehensive collection of data on the murky and often-controversial subject of employment and university enrollments of foreigners in science and engineering in the US.

Titled *Participation of Foreign Citizens in US Science and Engineering*, the 121-page report contains grist for those who complain there are too many, as well as for those who welcome their presence as a boon for the US. The report is neutral, confining itself to laying out the data clearly, but with some commentary to provide perspective on trends, including:

- About one-quarter of all graduate science and engineering students in 1983 were foreigners; in engineering, foreign students numbered over 40 percent, and in civil, mechanical, and electrical engineering, the percentages were even higher.

- Foreign enrollments, at all levels and all fields, have nearly doubled since 1964, but still remain a bit under 3 percent of all students enrolled in American higher education. There has been substantial growth, however, in science and engineering fields, particularly at the graduate level, where, between 1975 and 1983, the number of full-time foreign graduate students in doctorate-granting institutions rose from 33,000 to 60,000.

- The proportion of all science doctorates awarded to foreigners has risen from 14 to only 19 percent since 1960, whereas in engineering, it doubled, to 56 percent.

- As a percentage of all students in full-time graduate science studies, foreign students accounted for 40 percent of the enrollments in mathematics in 1983; in the physical sciences, they amounted to 29 percent.

- In graduate engineering, foreigners added up to 42

percent of total enrollments in mechanical, electrical, and civil engineering.

(*Participation of Foreign Citizens in US Science and Engineering* is available without charge from NSF, Division of Science Resources Studies, 1800 G St. Nw., Washington, DC 20550.)

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## Hughes Institute to Become Biggest Foundation

Slowly but certainly incubating on the biomedical scene, with Donald S. Fredrickson, former Director of the National Institutes of Health, presiding over the nest, is what's bound to be the biggest philanthropic foundation of them all: The financially revamped Howard Hughes Medical Institute.

Exactly how big won't be known until the sale takes place of the Hughes Aircraft Company, ownership of which was vested in the Medical Institute by the founder of both, the late Howard Hughes. But it's estimated that the sale of the company could yield the Institute an endowment of \$4-6 billion, thus surpassing, by a billion or 2, the Ford Foundation, now the richest in the business.

Bids for the firm have been received from GM and Boeing, and other offers may be in the works, and there's also the possibility of a public stock offering if none of the bids is considered satisfactory.

The sale is aimed to resolve prickly relations between the Institute and the Internal Revenue Service, which requires an annual minimum 5-percent payout by foundations. Not knowing the value of its holdings, the Institute has operated with some uncertainty on this matter, Fredrickson recently told SGR. But once the sale is completed, the arithmetic should be clear, he said.

Directing its largess to basic medical research and training since Hughes established it in 1953, the Institute has annually built up its disbursements to where they're projected at \$100 million for 1985. On the most conservative assumptions, that will rise to at least \$200 million a year when the endowment is in place, but the amount might actually be double that figure, or more. The ground rules spelled out in the Hughes charter aim at the medical area, but the language seems to leave some room for flexibility in the stated aim of "promot-

ing human knowledge within the basic field of the human sciences (principally the field of medical research and education) and effective applications thereof for the benefit of mankind."

Fredrickson became President of the Hughes Institute in 1983 after a career at NIH in which he served as Director of the Heart and Lung Institute and then as NIH Director from 1975-81.

With its biomedical support focused on genetics, immunology, metabolic control, and neuroscience, the Hughes Institute currently supports research units at about 15 major universities and medical centers. It also finances research training each year for 100 medical students and candidates for other degrees.

One of Fredrickson's major undertakings has been establishment of a collaborative Research Scholars Program with NIH to which the Hughes Institute has donated \$10 million. The money is for the renovation and operating costs of the former residence of the Sisters of the Visitation, on an 11-acre tract near the NIH Bethesda, Md., campus. Reflecting Fredrickson's longstanding concern about a decline in the number of MDs going into research careers, the "Cloister Project" is designed to give medical students, plus some others, experience in NIH laboratories. The program began this year with a class of 10 and will eventually enroll 30 students.

Though determined to dispense with the no-profile tradition of its eccentric founder, the Howard Hughes Medical Institute is still inconspicuous. Its executive offices are to be found, with difficulty, in the third-floor rear of a non-descript office building in Bethesda. Fredrickson says that the Institute will make serious efforts to become better known.

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